

Claims

1. A wireless communication method for use with a wireless communication system for performing a communication on a radio channel as a communication channel in a frequency band
5 selected from a plurality of communicable frequency bands having different transmission rates, the wireless communication method comprising the steps of:

detecting radio channels that are not used in the system and that are free of a disturbing wave transmitted from the
10 outside of the system from the frequency bands, in decreasing order from relatively higher transmission rates;

detecting whether or not received field strengths at transmission rates of the detected radio channels exceed a predetermined threshold value in decreasing order from the
15 relatively higher transmission rates; and

starting a communication on a channel having a transmission rate at which the received field strength reaches or exceeds the predetermined threshold value in a manner that a communicable frequency band having a relatively
20 higher transmission rate is prioritized and that an unused channel that is free of a disturbing wave and that has a relatively higher transmission rate in one of the frequency bands is prioritized as a communication channel in accordance with the results of the first and second detecting steps.

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2. A wireless communication method for use with a wireless communication system for performing a communication on a radio channel as a communication channel in a frequency band
selected from a plurality of communicable frequency bands
30 having different transmission rates, the wireless communication method comprising the steps of:

determining whether or not a disturbing wave radiated from the outside of the system exists on a radio channel selected from a frequency band communicable at a relatively higher transmission rate while the communication is being performed on the selected radio channel as a communication channel;

detecting radio channels that are not used in the system from communicable frequency bands in decreasing order from relatively higher transmission rates and that are free of a disturbing wave transmitted from the outside of the system when a disturbing wave has been detected at the determining step;

detecting whether or not received field strengths at the transmission rates of the detected radio channels exceed a predetermined threshold value in decreasing order from the relatively higher transmission rates; and

continuing the communication at a transmission rate of which the received field strength reaches or exceeds the predetermined threshold value in a manner that a frequency band communicable at a relatively higher transmission rate is prioritized and that an unused channel that is in one of frequency bands and that is free of a disturbing wave is prioritized as a communication channel in accordance with results of the determining step, the first detecting step, and the second detecting step.

3. A wireless communication method for use with a wireless communication system for performing a communication on a radio channel as a communication channel in a frequency band selected from a plurality of communicable frequency bands having different transmission rates, the wireless

communication method comprising the steps of:

detecting radio channels that are not used in the system from communicable frequency bands in decreasing order from relatively higher transmission rates and that are free of a disturbing wave transmitted from the outside of the system while the communication is being performed on a radio channel selected as a communication channel from a frequency band communicable at a relatively lower frequency rate;

detecting whether received field strengths at the transmission rates of the detected radio channels exceed a predetermined threshold value in decreasing order from the relatively higher transmission rates; and

continuing the communication at a transmission rate of which the received field strength reaches or exceeds the predetermined threshold value in a manner that a frequency band communicable at a relatively higher transmission rate is prioritized and that an unused channel that is in one of frequency bands and that is free of a disturbing wave is prioritized as a communication channel in accordance with results of the first detecting step and the second detecting step.

4. A wireless communication method for use with a wireless communication system for performing a communication on a radio channel as a communication channel in a frequency band selected from a plurality of communicable frequency bands having different transmission rates, the wireless communication method comprising the steps of:

determining whether or not a received field strength reaches or exceeds a threshold value when a transmission rate is increased while the communication is being performed on

a radio channel selected from a frequency band communicable at a relatively higher transmission rate; and

increasing the transmission rate and continuing the communication when the received field strength reaches or
5 exceeds the threshold value.

5. A wireless communication method for use with a wireless communication system for performing a communication on a radio channel as a communication channel in a frequency band
10 selected from a plurality of communicable frequency bands having different transmission rates, the wireless communication method comprising the steps of:

determining whether or not while the communication is being performed on a radio channel as a communication channel
15 selected from a frequency band communicable at a relatively higher transmission rate;

determining whether or not the current transmission rate can be changed to a lower transmission rate of which the received field strength reaches or exceeds the received
20 sensitivity point when the received field strength does not reach the received sensitivity point; and

changing the current transmission rate to a lower transmission rate of which the received field strength reaches or exceeds the received sensitivity point and
25 continuing the communication upon changing to the lower transmission rate.

6. A wireless communication apparatus composing a wireless communication system for performing a communication
30 on a radio channel as a communication channel in a frequency band selected from a plurality of communicable frequency

bands having different transmission rates, the wireless communication apparatus comprising:

means for detecting radio channels that are not used in the system and that are free of a disturbing wave transmitted from the outside of the system from the frequency bands in decreasing order from relatively higher transmission rates;

means for detecting whether or not received field strengths at transmission rates of the detected radio channels exceed a predetermined threshold value in decreasing order from the relatively higher transmission rates; and

means for starting the communication on a channel having a transmission rate at which the received field strength reaches or exceeds the predetermined threshold value in a manner that a frequency band communicable at a relatively higher transmission rate is prioritized and that an unused channel that is free of a disturbing wave and that has a relatively higher transmission rate in one of the frequency bands is prioritized as a communication channel in accordance with the results of the first and second detecting means.

7. The wireless communication apparatus as set forth in claim 6, wherein

a radio channel free of a disturbing wave is detected in a manner that when a received signal contains transmission destination address information and the transmission destination address information matches an apparatus address of the wireless communication apparatus, it is determined that the received signal is not a disturbing wave and that when the transmission destination address information does not match the apparatus address of the wireless communication

apparatus or the received signal does not contain the transmission destination address information, it is determined that the received signal is a disturbing wave.